

## **REMARKS**

Applicants propose adding new claims 61-65. Support for the new claims may be found at least between lines 10 and 22 on page 2 of the Patent Application. No new matter has been added. Applicants respectfully submit that the proposed amendments place the present application in better condition for allowance and/or appeal. Furthermore, Applicants respectfully submit that the proposed amendments will not require an additional search by the Examiner. Applicants therefore respectfully request that the proposed amendments be entered. Pursuant to the proposed amendments, claims 11-65 are pending in the present application.

In the Office Action, the Examiner rejected claims 1, 4, 6, 9, 11, 14, 16, 19, 21, 24, 26, 29, 41, 44, 46, and 49 under 35 U.S.C. 102(b) or 103(a) as being anticipated by or, in the alternative, obvious over, Chalamala, et al, "Effect of CH<sub>4</sub> on the Electron Emission Characteristics of Active Molybdenum Field Emitter Arrays," J. Vac. Sci. Tech. vol. 16(6), pgs. 307-376, 1998, hereinafter referred to as the first Chalamala publication in view of Chalamala, et al, "Interaction of H<sub>2</sub>O with Active Spindt-Type Molybdenum Field Emitter Arrays," J. Vac. Sci. Tech. vol. 17, pgs. 303-305, 1999, hereinafter referred to as the second Chalamala publication. The Examiner rejected claims 11, 14-16, and 19-20 under 35 U.S.C. 102(b) as being anticipated by Chalamala, et al, "Effect of O<sub>2</sub> on the Electronic Emission Characteristics of Active Molybdenum Field Emission Cathode Arrays," J. Vac. Sci. Tech. B vol. 16, pgs. 2859-2865, 1998, hereinafter referred to as the third Chalamala publication. The Examiner rejected claims 12-13, 17-18, 22-23, 25, 27-28, 30-40, 42-43, 45, 47-48, and 51-60 under 35 U.S.C. 103(a) as being unpatentable over either the first Chalamala publication or the second or third Chalamala publications and in view of admitted prior art. The Examiner's rejections are respectfully traversed.

As Applicants have argued in the previous responses, the appeal brief, and the reply brief, the three Chalamala publications are concerned with the effect of residual gases on the performance of field emitter arrays. However, Applicants maintain that these references are not at all concerned with chemical toxins and/or biological toxins and therefore do not describe or suggest reacting, ionizing, or dissociating at least one radical species by exposure to at least one of a chemical toxin and a biological toxin, as set forth in the pending claims. The Examiner has repeatedly alleged that molybdenum and/or methane are toxins. In support of this allegation, the Examiner notes that the toxins described in the present application are produced in chemical plants and/or manufacturing facilities. The Examiner also notes that chemical materials such as methane and molybdenum are used are produced and chemical plants and/or manufacturing facilities. The Examiner therefore alleges that methane and molybdenum are toxins. See Final Office Action, item 4, page 3. Applicants respectfully disagree and note that whether or not methane and/or molybdenum are produced in chemical plants and/or manufacturing facilities is irrelevant to the question of whether or not methane and/or molybdenum are toxins.

The Examiner further alleges that Material Safety Data Sheets (MSDS) for molybdenum plate and methane indicate that molybdenum and methane are toxins. Applicants respectfully disagree. The Merriam Webster Online Dictionary defines a toxin as “a poisonous substance that is a specific product of the metabolic activities of a living organism and is usually very unstable, notably toxic when introduced into the tissues, and typically capable of inducing antibody formation.”

The cited MSDS for molybdenum plate does not indicate that molybdenum requires any special first aid measures and suggests that first aid following inhalation should only be sought in

the case of complaints. No specific protective and/or hygienic measures are suggested, breathing equipment is not required, and protection of hands is not required. The MSDS for molybdenum also states that molybdenum is not acutely toxic, has no irritant effect on the skin, and has no sensitizing effects. However, as noted by the Examiner, the MSDS for molybdenum states that the acute molybdenum poisoning may cause death from cardiac failure. Applicants respectfully submit that many substances may cause death when ingested in large amounts and that this is not the criterion for determining whether or not the substance is a toxin. For example, alcohol is not considered a toxin and yet ingestion of large amounts of alcohol may result in death. Applicants reiterate that the MSDS for molybdenum explicitly states that molybdenum is not acutely toxic. Thus, Applicants submit that molybdenum falls into the category of substances that may cause death when ingested in large amounts but that are not toxins.

The cited MSDS for methane also contradicts the Examiner's allegation that methane is a toxin. In particular, Part IV of the MSDS states that "there are no specific toxicology data for methane. Methane is a simple asphyxiant, which acts to displace oxygen in the environment." The MSDS also states that methane is not irritating and does not cause sensitization with prolonged or repeated contact. As noted by the Examiner, exposure to methane may result in death. However, the MSDS for methane explicitly states that the effects of overexposure to methane are caused by the displacement of oxygen by the methane. For example, death may occur when the presence of methane reduces the oxygen concentration in the blood to less than 6%. However, the methane itself is not considered toxic. Accordingly, Applicants respectfully submit that the MSDS for methane teaches that the substance is not a toxin, contrary to the Examiner's allegation.

For at least the effort mentioned reasons, Applicants respectfully submit that the pending claims are not anticipated by any of the cited references. Applicants request that the Examiner's rejections of claims 1, 4, 6, 9, 11, 14, 16, 19, 21, 24, 26, 29, 41, 44, 46, and 49 under 35 U.S.C. § 102(b) be withdrawn.

Moreover, it is respectfully submitted that the pending claims are not obvious in view of the Chalamala publications and/or in view of the admitted prior art. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. As discussed above, the first and second publications are completely silent with regard to chemical and/or biological hazards and therefore do not teach or suggest at least the limitations related to reacting, ionizing, or dissociating a biological toxin and/or a chemical toxin. The admitted prior art also fails to teach or suggest any application of a field emitter array to the detection, mitigation, and/or remediation of chemical and/or biological hazards. Thus, Applicants respectfully submit that the Examiner has failed to make a *prime facie* case that the present invention is obvious over the cited references.

For at least the aforementioned reasons, Applicants respectfully submit that independent claims 11, 16, 21, 26, 31, 36, 41, 46, 51, 56, and all claims depending therefrom are not anticipated or rendered obvious by the Chalamala publications, either alone or in combination with the admitted prior art. Applicants respectfully request that the Examiner's rejections of claims 11-60 be withdrawn.

New claims 61-65 specifically set forth, among other things, reacting a radical species with at least one of Sarin, Soman, arsine, germane, diborane, and a toxic chemical used in the production of at least one of ammonia (NH<sub>3</sub>), chlorine (Cl<sub>2</sub>), and an insecticide. Applicants respectfully submit that the prior art of record is completely silent with regard to

reacting radical species with Sarin, Soman, arsine, germane, diborane, or toxic chemicals used in the production of ammonia (NH<sub>3</sub>), chlorine (Cl<sub>2</sub>), or insecticides. For at least the aforementioned reasons, Applicants respectfully submit that new claims 61-65 are in condition for allowance.

The Examiner is invited to contact the undersigned at (713) 934-4052 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,  
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Date: February 13, 2007

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